The clear adhesive **5** may be applied to the side of the liquid crystal display **11**. In this case, when ultraviolet rays are irradiated from the side of the transparent touch switch **4** to cure the adhesive, such as an ultraviolet hardening type clear adhesive, the lamination is carried out on a transparent stage, such as quartz glass, and the ultraviolet rays are irradiated through the quartz glass.

Although in the method of the present embodiment only one blob of the adhesive **5** is applied to the rear surface of the transparent touch switch **4**, it is understood that two or more blobs may be applied at preselected areas of the rear surface. Alternatively, the blob or blobs of the clear adhesive may be applied on the display surface of the liquid crystal display, following which the transparent touch switch and the liquid crystal display are then laminated to form a clear adhesive layer therebetween.

[Fourth Embodiment]

FIG. **6** shows an embodiment of an electronic device having the inventive display unit equipped with the transparent touch switch according to the foregoing embodiments. In this embodiment, the electronic device comprises a tablet and input pen. Unevenness of display, which is otherwise caused on the liquid crystal screen when inputting information on the touch switch surface by a pen, is prevented according to the present invention by using a special pen **7**. That is, when a force of about 200 g to 300 g or more is applied to the touch switch by the tip of the pen, there is a possibility that uneven display occurs on the screen of the liquid crystal display by the force which acts via the adhesive. The present invention provides a pen **7** having a mechanism for absorbing the force of 200 g or more which causes the uneven display, i.e., a mechanism by which no force of 200 g or more can be applied to the touch switch by the pen.

As shown in FIG. **6**, a pen **7** according to the present invention has a displaceable tip member **8** having a front end for contacting the liquid crystal screen of the display unit to input information and a rear end which abuts against one end of a spring **9**. The spring **9** is selected to undergo contraction when, for example, a force of 200 g or more is axially applied thereto by the tip member **8**. In this manner, because no force of 200 g or more is applied to the liquid crystal display by the pen **7**, it is possible to input information by the pen without damaging the image quality of the liquid crystal display. The structure of the pen **7** is not confined specifically to that described above.

Furthermore, because the operating force of the touch switch of the analog resistance film type is 15 g to 100 g, an electronic device which does not suffer from operational difficulties of the touch switch and which does not damage the image quality of the liquid crystal display may be realized by providing a pen in which no force of 100 g or more can be applied to the touch switch by the pen according to the present invention, which can be achieved by providing a spring which contracts with a force of 100 g or more.

Thus the present invention provides a display unit comprising a transparent touch switch and a liquid crystal display comprised of a liquid crystal layer disposed between a pair of transparent substrates. A display surface of the liquid crystal display is adhered to the transparent touch switch using a clear adhesive. By this construction, the reflectance between the transparent touch switch and the liquid crystal display is effectively reduced as compared with prior art display units, thereby improving the image quality of the display unit. Furthermore, by providing a clear adhesive having a refractive index which is equal to the refraction indices of the transparent touch switch and the transparent substrates supporting the liquid crystal layer, the reflection of light between the transparent touch switch and liquid crystal display is almost eliminated, thereby further improving the image quality of the display unit.

Accordingly, the present invention allows the image quality of the display unit equipped with the transparent touch switch to be improved and allows for miniaturization of the display unit by reduction of its overall thickness. Furthermore, the strength of the display unit is enhanced by adhering the transparent touch switch and the display surface of the liquid crystal display in surface-to-surface relationship while preventing formation of bubbles in the resulting adhesive layer. Moreover, the display unit may be provided at low cost because no investment for an expensive facility is required for its manufacture.

What is claimed is:

1. A display unit comprising: a liquid crystal display having a display surface; a transparent touch switch laminated on the display surface of the liquid crystal display; a clear adhesive layer interposed between the display surface of the liquid crystal display and the transparent touch switch; and a plurality of clear fillers disposed in the clear adhesive layer, the clear fillers comprising elastic spherical particles having a refractive index approximately equal to the refractive index of the clear adhesive layer.

2. A display unit according to claim **1**; wherein the transparent touch switch has a refractive index approximately equal to a refractive index of the clear adhesive layer.

3. A display unit according to claim **1**; wherein the liquid crystal display comprises a liquid crystal layer and a pair of transparent substrates sandwiching the liquid crystal layer therebetween.

4. A display unit according to claim **3**; wherein the refractive index of the clear adhesive layer is approximately equal to the refractive index of each of the transparent touch switch and the transparent substrates.

5. A display unit according to claim **1**; wherein the refractive index of the adhesive layer and that of the plastic spherical particles are within the range 1.47 to 1.57.

6. A display unit according to claim **5**; wherein the plastic spherical particles are all of the same size.

7. A display unit according to claim **6**; wherein the plastic spherical particles have a diameter of 12 microns.

8. A display unit according to claim **7**; wherein the plastic spherical particles have a diameter substantially less than the thickness of the adhesive layer.

9. A display unit according to claim **1**; wherein the plastic spherical particles have a diameter substantially less than the thickness of the adhesive layer.

10. A display unit according to claim **1**; wherein the plastic spherical particles have a diameter of 12 microns.

11. A display unit according to claim **1**; wherein the plastic spherical particles are all of the same size.

12. A display unit according to claim **11**; wherein the plastic spherical particles have a diameter substantially less than the thickness of the adhesive layer.

13. A display unit according to claim **1**; further including an input pen contactable with the transparent touch switch of the display unit for inputting information, the input pen having a mechanism for absorbing forces above a preselected value applied to the transparent touch switch by the input pen.

14. A display unit and input pen according to claim **13**; wherein the preselected value is within the range 200 g to 300 g.

15. A display unit and input pen according to claim **14**; wherein the mechanism comprises a spring.